ABSTRACT OF THE DISCLOSURE

An improved guiding member for use within a body lumen having a unique combination of superelastic characteristics. The superelastic alloy material has a composition consisting of about 30% to about 52% (atomic) titanium, and about 38% to 52% nickel and may have one or more elements selected from the group consisting of iron, cobalt, platinum, palladium, vanadium, copper, zirconium, hafnium and niobium. The alloy material is subjected to thermomechanical processing which includes a final cold working of about 10 to about 75% and then a heat treatment at a temperature between about 450° and about 600° C and preferably about 475° to about 550° C. Before the heat treatment the cold worked alloy material is preferably subjected to mechanical straightening. The alloy material is preferably subjected to stresses equal to about 5 to about 50% of the room temperature ultimate yield stress of the material during the thermal treatment. The guiding member using such improved material exhibits a stress-induced austenite-to-martensite phase transformation at an exceptionally high constant yield strength of over 90 ksi for solid members and over 70 ksi for tubular members with a broad recoverable strain of at least about 4% during the phase transformation. An essentially whip free product is obtained.